F1-235

CALFED BAY-DELTA PROGRAM
1997 Category III Ecosystem Restoration Project Proposal
July 28, 1997 97 JUL 28 PM 3:27

Executive Summary

Project Title: Through Delta Transport of Juvenile Salmonids to Enhance Population Restoration by Increasing Survival and Reducing Straying: Phase I.

Applicant Name: Northern California Fisheries Restoration Foundation (NCFRF)

Project Description and Primary Biological/Ecological Objectives: This project will transport juvenile salmon from Mokelumne hatchery in the Mokelumne River and through the Delta in flow-through transport cylinders to evaluate this technique for improving survival during this life stage and reducing straying by adults during the upstream migration life stage. More juveniles will survive because they will be protected from unscreened diversions, altered flows, and predation by native and introduced species. Fewer adults will stray because the juveniles will imprint on the river and Delta pathway during their transport downstream.

The primary objective is to evaluate the technique using hatchery fish marked with coded wire tags. Long-term ecological objectives of the technique, once proven, are (1) to accelerate the doubling of naturally produced anadromous fish by reducing juvenile mortality in the Bay-Delta system, and (2) to provide a tool for artificial propagation of fish that will reduce the negative genetic consequences of straying and enhance the restoration of locally adapted strains/runs of fish to specific watersheds.

In-river transport of juvenile fish has been demonstrated previously in other river systems and in the San Francisco Bay-Delta system using net pens. The flow-through cylinder proposed here improves over the net pens approach in terms of structural integrity during adverse weather, better control over travel times, and improved monitoring of fish condition and environmental factors during transport.

Approach/Tasks/Schedule: Our approach is to compare total escapement+harvest and straying rates between juvenile fall run Chinook salmon transported safely through the Delta in a Submersible Aquatic Fisheries Environment (SAFE) Transport Cylinder with the same rates for juvenile salmon that are released directly into the river and must swim through the Delta. Fall run Mokelumne River Fish Facility salmon (100,000) will be tagged at the hatchery, transported by tank truck to Thornton, and then either transported by SAFE (experimental group of 50,000) or released into the river (control group of 50,000). The SAFE will be towed by boat down the Mokelumne River, past New Hope Landing into the South Mokelumne River, south towards Terminous, west to the San Joaquin River, and then out through San Francisco Bay where the fish will be released. This project will be performed in 1998-2000 during April-May coincident with releases of fish from the hatchery. Reports will be submitted annually.

Justification for Project and Funding by CALFED: This focus of this project is the priority species *San Joaquin and East-side Delta tributaries fall run Chinook salmon*. The

technique could be applied to other priority species including winter run salmon, spring run salmon, late fall run salmon, steelhead, and watershed-specific strains of these and other anadromous fish. This project addresses several stressors identified by the CALFED Technical team (see proposal for details) including (1)Alteration of flows , (2) Unscreened diversions, (3) Migration barriers and straying, (4) Loss of riparian habitat (SRA), (5) Undesirable species interactions/elevated predation losses, *(6)Population management/migratory pathway changes/small or non-existent spawning populations*, and *(7) Artificial propagation*.

Budget Costs and Third Party Impacts: There are no anticipated third party impacts. The budget requested for the project is Year 1: $167,172; Year 2: $155,550; Year 3: $142,348. Matching funds and in-kind contributions total approximately $50,000 per year.

Applicant Qualifications: Mr. Thomas Frazee is President of the Northern California Fisheries Restoration Foundation, a non-profit corporation dedicated to protection and restoration of fisheries. For the past two years he has developed the fish transport concept to the SAFE approach proposed here. Mr. Frazee has established good working relationships with a variety of stakeholders and agency representatives in pursuit of fisheries restoration. Mr. Frazee will be principal in charge of the project and will guarantee compliance with all applicable regulations and maintain communication with CALFED and appropriate agencies.

Jerry Big Eagle is a principal of Big Eagle and Associates, an 8(a) disadvantaged small business firm that specializes in salmonid fisheries projects, especially coded wire tagging. Mr. Big Eagle previously worked for the U.S. Fish and Wildlife Service. Big Eagle & Associates has experience tagging fish for CDFG and EBMUD at the Mokelumne River Fish Facility. Jerry Big Eagle will supervise the tagging and field operations, including tagging quality control and reporting.

Dr. Michael McGowan is a fisheries ecologist with 20 years experience in academia, government, and private consulting. He has conducted fisheries and water quality research in the Bay-Delta system. He participates in the IEP Estuarine Ecology Team and is a member of the S.F. Bay Wetlands Goals Fish Focus Team. He is a Director of the San Francisco Tyee Club. He has experience tracking juvenile salmon migrations in the Mokelumne River and through the Delta, experimental design and statistical analyses, water quality measurements, QA/QC procedures, and report writing.

Monitoring and Data Evaluation: These data will be provided annually to CDFG and USFWS for incorporation into their tag recovery databases for the three years of this study: Tagging data, Water quality data, Fish health observations, Smoltification indices.

Local Support/Coordination with other Programs/Compatibility with CALFED objectives: This project has the support of the CDFG, East Bay Municipal Utility District, United Anglers, a local assemblyman, and a local congressman. The project is consistent with CALFED Objective Two (improve ecological functions to support sustainable populations of diverse animal species) and the results will not prejudice any CALFED options.

CALFED BAY-DELTA PROGRAM
1997 Category III Ecosystem Restoration Project Proposal
July 28, 1997

Through Delta Transport of Juvenile Salmonids to Enhance Population Restoration by Increasing Survival and Reducing Straying: Phase I

Northern California Fisheries Restoration Foundation
Thomas Frazee, President/CEO
36000 Fremont Blvd., Suite 45
Fremont, CA 94536
(510) 795-8840 voice or fax (call first)

Type of Organization and Tax Status: Non-profit 501 c 3.
Tax Identification Number:
Technical and Financial Contact person: Thomas Frazee

Participants/Collaborators in Implementation:

Big Eagle and Associates
19105 Ridge Road
Red Bluff, CA 96080

contact: Jerry Big Eagle, (916) 527-0696 fax -0637

RFP Project Group Type: Other Services

PROJECT DESCRIPTION

Project Description and Approach This project will transport juvenile salmon derived from the Mokelumne hatchery in the Mokelumne River and through the Delta in flow-through transport cylinders (Figure 1) to evaluate the effectiveness of this technique for improving survival during the juvenile out-migrating life stage and reducing straying by adults during the upstream spawning migration life stage. Juvenile survival will be enhanced because conveyance with the transport cylinder will protect them from unscreened diversions, from altered flows, and from predation by native and introduced species during their trip down the river and through the Delta. We hypothesize that straying of returning adults will be reduced because of the opportunity for the juveniles to imprint on the river and Delta pathway during their transport downstream.

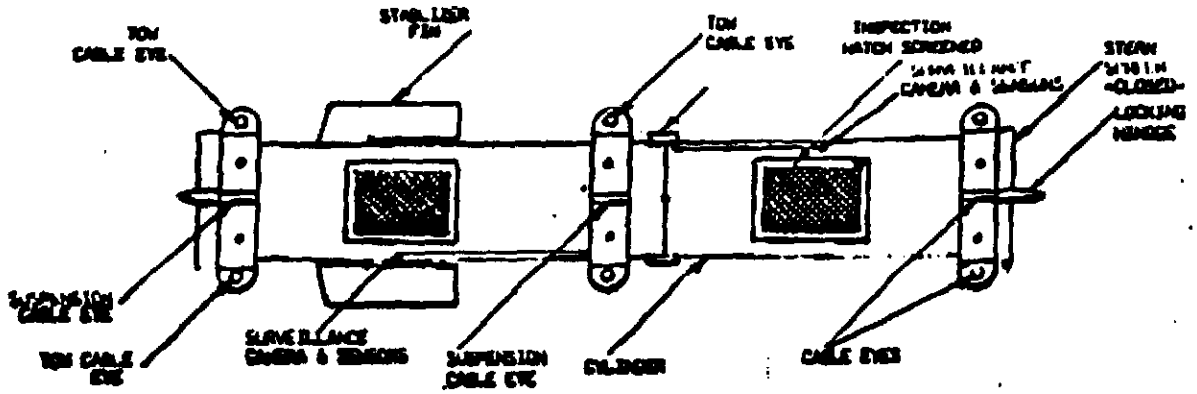
The immediate biological objective is to evaluate the technique using hatchery fish marked with coded wire tags (CWT). Statistical analyses of CWT returns will compare survival and straying rates of treatment fish (transported) and control fish (released into the river as usual). Dual long-term ecological objectives of the technique, once proven, are (1) to accelerate the doubling of naturally produced anadromous fish by reducing juvenile mortality from a variety of causes in the Bay-Delta system, and (2) to provide a tool for artificial propagation of fish that will reduce the negative genetic consequences of straying and enhance the restoration of locally adapted strains/runs of fish to specific watersheds. An additional benefit of this technique is that it reduces competition for food and habitat between these transported fish and other, naturally produced, juvenile fish in the river at the same time.

In-river transport of juvenile fish has been demonstrated previously in other river systems and, to a limited extent, in the San Francisco Bay-Delta system using net pens. The flow-through cylinder approach proposed here improves over the net pen approach in terms of structural integrity during adverse weather, better control over travel times, and improved monitoring of fish condition and environmental factors during transport. Our experimental design and monitoring will scientifically test the utility of the proposed approach.

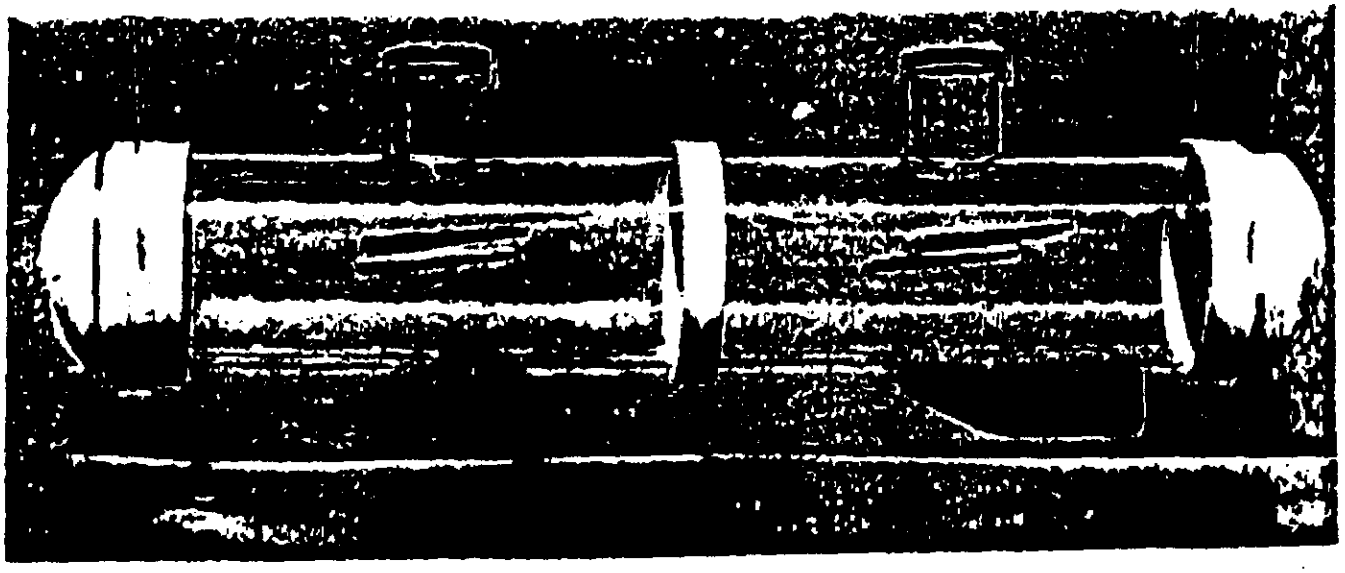
Location and geographic boundaries of project This project will take place in the lower Mokelumne River, the South Mokelumne and San Joaquin Rivers as they pass through the Delta, and through Suisun, San Pablo, and central San Francisco Bays.

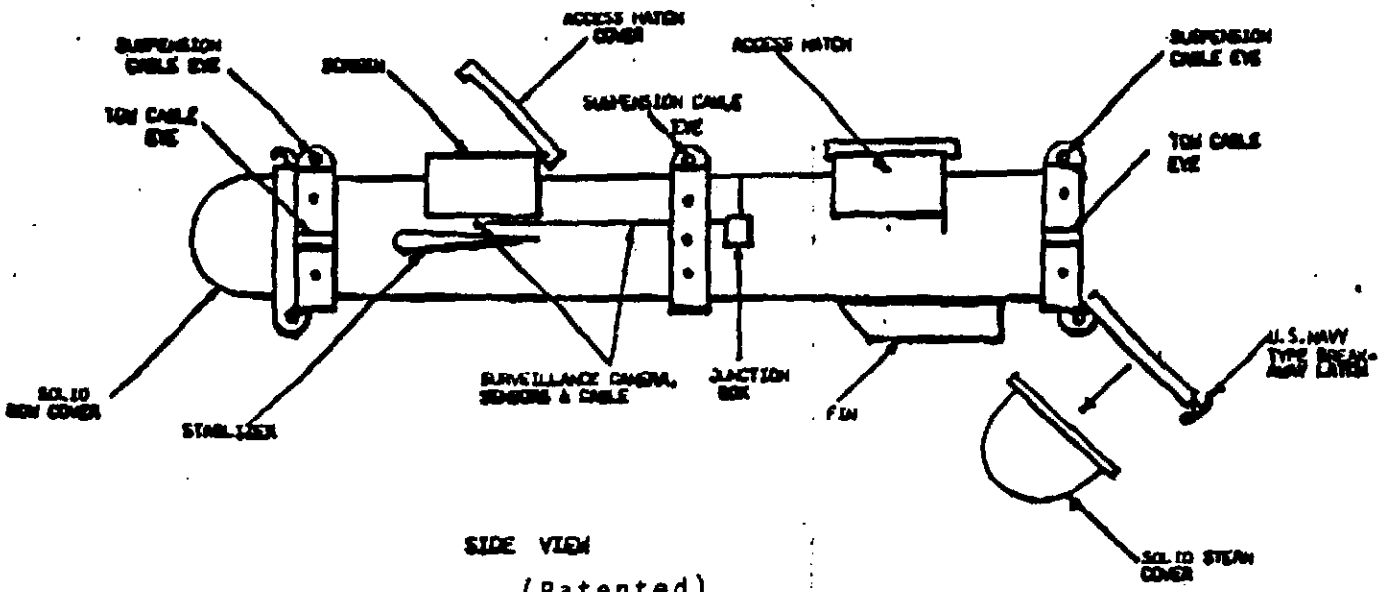
Expected Benefits This project addresses the priority species San Joaquin and East-side Delta tributaries fall run Chinook salmon. If proven successful, the technique could be applied to other priority species including winter run salmon, spring run salmon, late fall run salmon, steelhead, and watershed-specific strains of these and other anadromous fish. This project addresses several stressors identified by the CALFED Technical team (see proposal for details):

- Alteration of flows: the juvenile fish would be transported in the SAFE along the "natural" migration route despite altered flow magnitude or direction
- Unscreened diversions: the juvenile fish would not be vulnerable to unscreened



TOP VIEW





SIDE VIEW

(Patented)

Figure 1. **SUBMERSIBLE AQUATIC FISHERIES ENVIRONMENT (SAFE)**

diversions therefore populations could begin to recover sooner than waiting for all diversions to be screened

- Migration barriers and straying: migration barriers can be bypassed using the SAFE technique, e.g., transport past Georgiana Slough and the Delta Cross Channel would enhance survival without impacting water management operations
- Loss of riparian habitat (SRA): the SAFE method can build anadromous fish populations while large cottonwoods, oaks, etc., are being restored and SRA becomes established
- Undesirable species interactions/elevated predation losses: the proposed approach precludes loss of juvenile salmon to predators thus eliminating the impact of this stressor
- Population management/migratory pathway changes/small or non-existent spawning populations: our approach can help reinforce migratory pathway imprinting, reduce mortality and straying, and therefore help replenish small populations or re-establish founding populations.
- Artificial propagation: reduced straying and improved imprinting will reduce genetic impact of this stressor and provide a tool for adaptive management of hatchery stocks

Quantification of Expected Benefits Out migrating salmon smolts are subject to very high mortality rates in the Delta. Predation by striped bass mortality is 75% in some locations. Mortality at thousands of unscreened diversions is significant. Death from other means such as bird predation, degraded habitat stress, and altered flow regimes is not quantified but likely to be substantial. Adult return rates of coded wire tagged salmon in the Sacramento Basin are approximately 0.3 of 1%. Transport by the SAFE has the potential to increase survival during out migration to near 100%. This increase in juvenile survival is likely to lead to greatly increased adult survival, harvest, and escapement. For example, the Tyee Club has had as much as 18% adult returns from net-pen reared juvenile salmon released into the ocean. The Central Coast Salmon Enhancement , Inc. has had 2,000 fish return from a release of 70,000, a return rate of 2.85%. Based on these examples, we expect to have an order of magnitude improvement over the historic adult return rates or at least a 3% return from 50,000 transported juveniles, or 1500 fish each year. This is comparable to the median natural run size (1501) of the Mokelumne River from 1967-1991 and three times the median numbers of adults (507) that returned to the Mokelumne Hatchery during the same period. (Data from T. Mills and F. Fisher, 1994, Central Valley anadromous sport fish annual run size, harvest, and population estimates, 1967 through 1991, CDFG Inland Fisheries Technical Report).

We cannot predict the amount of decrease in straying because no similar study has taken place in such a complex environment as the Bay-Delta. However, the expected high return rates from the transported fish will provide ample sample sizes for estimating the amount of improvement in homing and testing its statistical significance.

Background and Biological/Technical Justification A significant number of juvenile out migrating Central Valley salmonids are lost each year to water diversions, habitats degraded by low flows, predation, pollution, and other factors. The cumulative effects of these sources of mortality have led to precipitous declines in escapement and population sizes of anadromous fish in the system, especially salmonids. Mortality rates of as high as 75% have been estimated for

predation by striped bass on salmon and steelhead in the Delta. There are several thousand unscreened diversions that also impact small salmon. Entrainment, predation by native and non-native fishes, and poor water quality are believed to be three of the major reasons for the recent declines in adult escapement estimates. There are ongoing efforts to correct these problems (CVPIA, CALFED, etc.) for Central Valley anadromous fishes but none of the solutions is complete. Full implementation will take several years, if not decades, and is not guaranteed to bring back the historically plentiful populations of salmon. The Northern California Fisheries Restoration Foundation proposes this project to test a technique for protecting out migrating salmon now, while the other solutions are being implemented. In addition, this technique (transport through the Delta) is a potential tool for adaptive management of some other ecosystem stressors such as the genetic impacts of hatchery fish on wild fish stocks.

In the Columbia River basin, U.S. Fish and Wildlife and U.S. Army Corps of Engineers have conducted transport studies with acceptable results for decreasing juvenile mortality. The California Department of Fish and Game conducted similar studies, with similar results, in 1959. Net pen rearing of salmon in San Francisco Bay and off the Central Coast of California have shown dramatic improvements in survival and returns of tagged fish.

Proposed Scope of Work

Task 1.0 Mobilization
- Task 1.1 Purchase and construct 2 SAFE's and other needed equipment
- Task 1.2 Outfit vessel (Pequod)
- Task 1.3 Field test ship and equipment

Task 2.0 Tagging

Task 3.0 Transport

Task 4.0 Monitoring
- Task 4.1 Survival and general health
- Task 4.2 Water Quality
- Task 4.3 Smoltification Index

Task 5.0 QA/QC and Reporting
- Task 5.1 Prepare QA/QC protocols and standard data forms
- Task 5.2 Review data for completeness and accuracy
- Task 5.3 Enter and edit data on computer
- Task 5.4.0 Annual Report
  - Task 5.4.1 Draft Report
  - Task 5.4.2 Final Report

Monitoring and Data Evaluation Data will be provided annually to CDFG and USFWS for incorporation into their tag recovery databases for the three years of this Phase I SAFE study. (A

separate proposal may be submitted for a subsequent Phase II SAFE study to analyze the tag returns for adult survival and straying rates in years 4, 5, and 6.)

- Tagging data (tag codes, numbers of fish tagged, retention rate, mortality)
- Water quality data during transport (temperature, oxygen, conductivity, turbidity, pH) inside and outside of the SAFE every 6 hours
- Fish health observations, feeding rate, and mortality daily
- Smoltification indices (thyroxin and gill ATP-ase) at four points during transport

Implementability The proposed project has the approval of the California Department of Fish and Game and does not require additional permits, easements, etc. The SAFE transport cylinder is designed to protect the salmon from extreme hydrologic/climatic conditions so the project is unlikely to be affected by unexpected flow or weather conditions. Local support of United Anglers and the Tyee Club and other fishing organizations has been obtained. East Bay Municipal Utility District will contribute the cost of the coded wire tags and will help coordinate water releases to the Mokelumne River to assist the downstream transport (Mr. Joe Miyamoto, personal communication to Tom Frazee).

COSTS AND SCHEDULE TO IMPLEMENT PROPOSED PROJECT

Budget Costs (requested from CALFED, matching funds are presented separately below)

Note 1. Benefits = 28%, Overhead = 40% are applied to salary (Salary * 1.28 * 1.4).

Note 2. General and Administrative = 8% applied to total Salary + and all other costs.

Note 3. Miscellaneous and ODC are included with Materials and Supplies.

Note 4. Numbers may not add exactly because of rounding errors. Spreadsheet available.

Note 5. Matching = 25 days at $2,000. Vessel "Pequod", Eugene Melville 510 228-9329. Additional matching = $6,000/year donation of CWT tags by EBMUD.

Task	Labor Hours	Salary + Benefits + Overhead	G&A (no fee)	Service Contracts	Materials and Supplies	Misc. and ODC's	Total Cost
1 Mobilize							
1.1	120	$6,249	$3,003		$31,290		$40,542
1.2	118	$6,427	$730		$2,700		$9,857
1.3	104	$5,829	$466				$6,296
2 Tagging	8	$631	$1,926	$23,440			$25,996
3Transport	960	$52,934	$4,734		$6,250		$63,919
4 Monitor							
4.1	12	$849	$68				$917
4.2	12	$849	$142		$925		$1,916
4.3	32	$2,265	$517		$4,200		$6,982
5 QA/QC							
5.1	32	$2,265	$181				$2,446
5.2	24	$1,892	$151				$2,044
5.3	24	$1,892	$151				$2,044
5.4	56	$3,899	$312				$4,211
Total Year 1	1502	$85,983	$12,383	$23,440	$68,805		$167,172

Year 2 = $155,550 based on only 1 additional SAFE, not 2, and then adjusted for 5% inflation.
Year 3 = $142,348 based on no additional SAFE, not 1, and then adjusted for 5% inflation.
Total Request = $456,067.00 .

Schedule Milestones (Year 1, typical)

	1997			1998							
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Notice to Proceed	X											
Task 1		X	----------	----------	X							
Task 2							X					
Task 3								X	-----	X		
Task 4								X	-----	X		
Task 5			X	----------	----------	----------	----------	----------	----------	----------	X	
Annual Report 90 days after release.												X

Third Party Impacts No third party impacts are anticipated to result from this project.

APPLICANT QUALIFICATIONS Mr. Thomas Frazee is President and CEO of the Northern California Fisheries Restoration Foundation, a small, non-profit corporation dedicated to protection and restoration of fisheries, especially salmonids. He has been active in fishing and conservation for 30 years. For the past two years he has developed the fish transport concept to the SAFE approach proposed here. Mr. Frazee has established good working relationships with a variety of stakeholders and agency representatives in pursuit of fisheries restoration. Mr. Frazee will be principal in charge of the project and will guarantee compliance with all applicable regulations, communicate with CALFED and appropriate agencies, and coordinate field work, data collection, and reporting.
References: Bob Franko 408 247-7114; Ralph Dobson 510 684-3199

Jerry Big Eagle is a principal of Big Eagle and Associates, an 8(a) disadvantaged small business firm that specializes in salmonid fisheries projects, especially coded wire tagging. Mr. Big Eagle previously worked for the U.S. Fish and Wildlife Service. Big Eagle & Associates has experience tagging fish for CDFG and EBMUD at the Mokelumne River Fish Facility. Jerry Big Eagle will supervise the tagging and field operations, including tagging quality control and reporting. .References: Randy Brown, DWR (tagging studies); Jan Sullivan, NMFS, Seattle (juvenile salmon population contract)

Dr. Michael McGowan is a member of the Board of Directors of NCFRF and is a fisheries ecologist with 20 years experience in academia, government, and private consulting. He has conducted fisheries and water quality research in the Bay-Delta system. He participates in the Interagency Ecological Program's Estuarine Ecology Team and is a member of the San Francisco Bay Wetlands Goals Fish Focus Team. He is a Director of the San Francisco Tyee Club. He has relevant experience tracking juvenile salmon migrations in the Mokelumne River and through the Delta using radio telemetry. He has successfully managed several million dollars worth of multi-disciplinary research projects including extensive ship time. Dr. McGowan will oversee experimental design and statistical analyses, water quality measurements, QA/QC procedures, and contribute to final report writing as well as participate in field work.
References: Fish Restoration - Stan Soliday, US Army Corps of Engineers, Sacramento (916)557-5713; Mokelumne Fish Facility - Mike Cochran, CDFG, (209) 759-3383.

COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The Northern California Fisheries Restoration Foundation will comply with all terms and conditions consistent with applicant type (non-profit) and RFP Project Group (other services). These terms and conditions are listed in Attachment D of the RFP.

A signed copy of Item 8, Non-Discrimination Compliance form is attached per Table D-1. Item 2 will be provided before or at signing of the Final Contract per Table D-1.

Attachments: Item 8, Non-Discrimination Compliance form
Letters of endorsement from: Timothy Farley, Jim Paulk, John Buettler, Michael Machado, Tom Campbell.

Item 8

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME
Northern California Fisheries Restoration Foundation

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

Thomas Frazee
OFFICIAL'S NAME

July 28, 1997
DATE EXECUTED

EXECUTED IN THE COUNTY OF
Alameda

Thomas Frazee per Michael F. Healy
PROSPECTIVE CONTRACTOR'S SIGNATURE

President/CEO
PROSPECTIVE CONTRACTOR'S TITLE

Northern California Fisheries Restoration Foundation
PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

I-005157

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, Gc

DEPARTMENT OF FISH AND GAME
1416 NINTH STREET
P.O. BOX 944209
SACRAMENTO, CA 94244-2090
(916) 653-6194

October 25, 1996

Mr. Tom Frazee, President/CEO
Northern California Fisheries Restoration Foundation
36000 Fremont Boulevard, Suite 45
Fremont, California 94536

Dear Mr. Frazee:

In response to our meeting earlier in the week, I want to clarify our position with respect to your tests of the tube transport device.

We understand that you plan to transport 100,000 fall chinook smolts from Wimpy's Marina in the Delta to ocean waters. You indicated that Mr. Bruce Barngrover had previously committed the fish to you for three years. It is also our understanding that you will arrange to have the fish coded-wire tagged, and that we will cover the costs of collecting the heads and reading the tags from adults caught in the sport or commercial fisheries or returning to Mokelumne River Hatchery.

With these understandings, we support your fish transport experiment.

Sincerely,

Timothy C. Farley

Timothy C. Farley, Chief
Inland Fisheries Division

TCF:ldh

cc: Department of Fish and Game
Sacramento, California

Mr. A. Petrovich, Jr.
Mr. Alan Baracco

Department of Fish and Game
Rancho Cordova, California

Mr. Banky Curtis
Mr. Bruce Barngrover

Department of Fish and Game
Redding, California

Mr. Rich Elliott
Mr. Randy Benthin

Department of Fish and Game
Fresno, California

UNITED ANGLERS
of Southern California

16835 Algonquin, #357
Huntington Beach, CA 92649
714 846 8259 TEL
714 840 3318 FAX

September 18, 1996

Thomas Frazee, President
Northern California Fisheries Restoration Foundation
36000 Fremont Blvd., #45
Fremont, CA 94536

Dear Mr. Frazee:

United Anglers of Southern California, a division of United Anglers of California, as the largest fishing conservation organization in the state, represents over 1.5 million anglers in California. We have looked at your proposal to transport smolts of stressed salmon runs through the Bay-Delta estuary to the ocean. This makes a lot of sense to us, and we would like to support your efforts.

We understand that there may be other viable long-term solutions, but if we don't take some kind of immediate action to save fish, the long-term solution could turn out to be a dream. We need to get as many fish into the ocean as we can - as soon as we can.

There are extreme measures being taken to protect salmon runs, and fishermen, both recreational and commercial, are paying the price of having no fish. We need to act now to rescue as many fish as we can - that's just plain "good old common sense." The cost in terms of not doing so are tremendous, and we not only applaud your efforts but intend to help in any way that we can.

Best regards,

Jim Paulk
President, UASC

UNITED ANGLERS OF CALIFORNIA

September 12, 1996

Thomas Frazee, President/CEO
Northern California Fisheries
Restoration Foundation
36000 Fremont Blvd., #45
Fremont, CA 94536

Dear President Frazee:

United Anglers is the state's leading fishery conservation organization representing some 30,000 anglers across California. We have reviewed your proposal to utilize FACT technology to transport salmon smolts of stressed salmon runs through the Bay-Delta estuary to the ocean. Our organization would like you to know of our support for this project. We are pleased to work with NCFRF to assist your efforts to safely escort Sacramento River winter-run salmon through the estuary.

Your proposal to utilize this technology to help ensure these fish survive the gauntlet of several thousand unscreened and poorly screened diversions including the massive pumps of the state and federal water projects makes sense in light of the acute situation faced by the winter-run. It is in the public's best interest to ensure every feasible step is taken to expedite the recovery of this once bountiful salmon run. Reducing the losses this fishery suffers from diversions and predation as it migrates through the estuary is absolutely essential if this fishery is to recover.

We understand you propose the use of this transport only until such time as the fishery has recovered and flows through the estuary are sufficient to sustain this restoration. Screening thousands of diversions and ensuring such flows become a reality could take at lease a decade. While the establishment of the "Bay-Delta Accord" and the implementation of the Central Valley Project Improvement Act hold promise to restore the habitat required by the winter-run, it would be inappropriate to think these institutional agreements will solve the problem in the short term.

Recreational anglers have been severely affected by the listing of the winter-run as an endangered species, as has the sportfishing industry. If we do not take immediate steps to help recover this fishery, most of the state's recreational salmon fishery could be terminated. This will cost the state millions of dollars annually and turn anglers against the Endangered Species Act. We look forward to working with you to prevent this from happening.

Sincerely,

John Beuttler
Executive Director

P.O. BOX 942849
SACRAMENTO, CA 94249-0001
(916) 445-7931

DISTRICT OFFICE
31 EAST CHANNEL STREET
ROOM 305
STOCKTON, CA 95202
(209) 948-7479

Assembly
California Legislature

MICHAEL J. MACHADO
ASSEMBLYMEMBER, SEVENTEENTH DISTRICT

- CONSUMER PROTECTION, GOVERNMENTAL EFFICIENCY AND ECONOMIC DEVELOPMENT
- ENVIRONMENTAL SAFETY & TOXIC MATERIALS
- JUDICIARY
- NATURAL RESOURCES

October 15, 1996

Jacqueline Schafer, Director
Department of Fish and Game
1416 9th Street, 12th Floor
Sacramento, CA 95814

Dear Ms. Schafer,

As you are aware, the dramatic decline in the Delta in the number of once abundant California salmon and steelhead trout continues unabated. This has happened in spite of the efforts (including financial) of Federal, State and local fishery and wildlife agencies as well as the efforts of many private organizations over the past several decades to reverse the trend. The Sacramento River Winter-Run Chinook and Coho salmon have already been listed as "endangered" and "threatened", respectively, by the National Marine Fisheries Service in accordance with the Endangered Species Act. Additional stocks as well as species of salmonids are being considered for similar listing.

Most commercial and recreational fishers of Northern California, in agreement with many of their counterparts in other parts of the state and country, have generally supported both public and private conservation and restoration efforts to protect sensitive species of salmonids and restore their habitat. In doing so, they have relied not only on the scientific community but also on the cognizant government agencies to determine the appropriate policies and management programs. However, it appears that these initiatives focus almost exclusively on finding long range solutions to the problem of declining salmon stocks while little or no attention is given to addressing the more immediate concern of sustaining salmon fishery in the interim.

The Flow-Through Aquatic Transport Cylinder (FATC) developed by a partnership of NCFRF and New West Technologies may have the possibility of filling this interim need. FATC is designed to improve the survival of outmigrant juvenile salmon while the Department of Fish and Game, in conjunction with other agencies, attempts to find a more permanent, "natural" solution to restoring the population of these animals.

Given the current state of the Sacramento and San Joaquin mainstems and the competing demands for water, the deployment of FATC is not expected to adversely impact any of the proposed long range solutions. On the contrary, it may assist in restoring both the socio-economic balance within the recreational and commercial fisheries industries and the environmental balance, albeit artificially, until the permanent solution is put into place. At that

time, the use of technologies such as the FATC should be discontinued.

There have been requests made to your department to share costs on at least a test of the efficacy of this new device. I understand that the department rejected the first proposal for the Mossdale Landing region because of a couple of technical deficiencies, but more importantly because of the unavailability of fish from the Merced River Hatchery. The second proposal for the Thornton area received an assurance to furnish fish but no willingness to participate financially or otherwise.

Reviews of the FATC have criticized it as merely a "band-aid" for symptoms rather than seeking permanent cures. The FATC has been equated to conventional "barging" methods for transporting fish. This technology continues to draw controversy as "ineffective" particularly from groups holding conflicting philosophical views regarding the most appropriate strategy for restoring depressed stocks in California and elsewhere. However, the potential of barging as an effective management tool was demonstrated in a small scale pilot study by DFG as early as 1958. Since then, barging has been and continues to be deployed successfully by the U.S. Army Corps of Engineers in their large scale salmonid outmigrant transportation program in the Columbia River Basin. Attached is an Executive Summary of a recent report which concludes that ". . . recoveries from all areas continue to strongly favor the transported groups." One of the authors of this and many other reports on barging fish is generally recognized as one of the foremost experts on this subject matter. He is Dr. Gene Matthews of the National Marine Fisheries Service. He can be reached at (206)860-3251.

While FATC is also a form of in-water conveyance of fish, it is first and foremost, an effective method of imprinting anadromous species while protecting them from predation and other hazards, especially in watersheds, such as the Sacramento/San Joaquin Basin, that are not readily accessible to barges of the type that are currently in use in the Pacific Northwest states.

Absent other technologies available to address the interim needs to improve and maintain the salmon fishing in the Delta, I am urging you to support the proposition to implement the FATC for the Mossdale Landing and the Thornton region. The FATC is a modification of the barging technology demonstrated by the Department of Fish and Game in 1958 and used in the Columbia River Basin. I believe their demonstration project merits approval. It is supported by more than 1.5 million members and affiliates of United Anglers of California. Vibrant Delta fishing contributes to the environment, the economy and recreation of Californians.

I look forward to your reply.

Sincerely,

MICHAEL J. MACHADO
Assemblymember, District 17

15TH DISTRICT, CALIFORNIA

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KARIN MIRANDA PIPKIN
CHIEF OF STAFF

October 7, 1996

Ms. Jacqueline E. Schafer
Director
California Dept. of Fish and Game
1416 Ninth Street
Sacramento, CA 95814

Dear Ms. Schafer,

The Northern California Fishery Restoration Foundation (NCFRF) recently provided me with a copy of their proposal for a pilot salmon out-migration project on the Mokelumne River. I understand that your office received the original copy, but I've enclosed a second copy for your ready convenience. The Foundation believes that their project could complement the future restoration of salmon habitat. May I take a brief moment to provide you with the details of the NCFRF proposal?

Given the current status of salmon and steelhead populations, the demands on water resources by a variety of users, and the burdens placed upon the fishing industry, the Northern California Fishery Restoration Foundation developed the enclosed plan in an attempt to restore threatened and endangered species of migratory fish. I am informed the Foundation's plan employs *flow-through aquatic transportation cylinder* technology which provides protected and unimpeded access to the ocean (along natural migratory patterns), thus increasing smolt survival rate. The Foundation informs me that, with the exception of the need for the actual young fish stock, the project will be at no direct cost to California taxpayers.

I commend the efforts of the foundation in their effort to employ private resources to aid in the recovery of these species. I would be grateful if your office could take a moment to review the enclosed proposal and provide me with your feedback. Thank you for your attention to this project and request.

Sincerely,

Tom Campbell
Member of Congress

TC:dgc
enclosure
cc: Thomas Frazee, NCFRF ✓

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